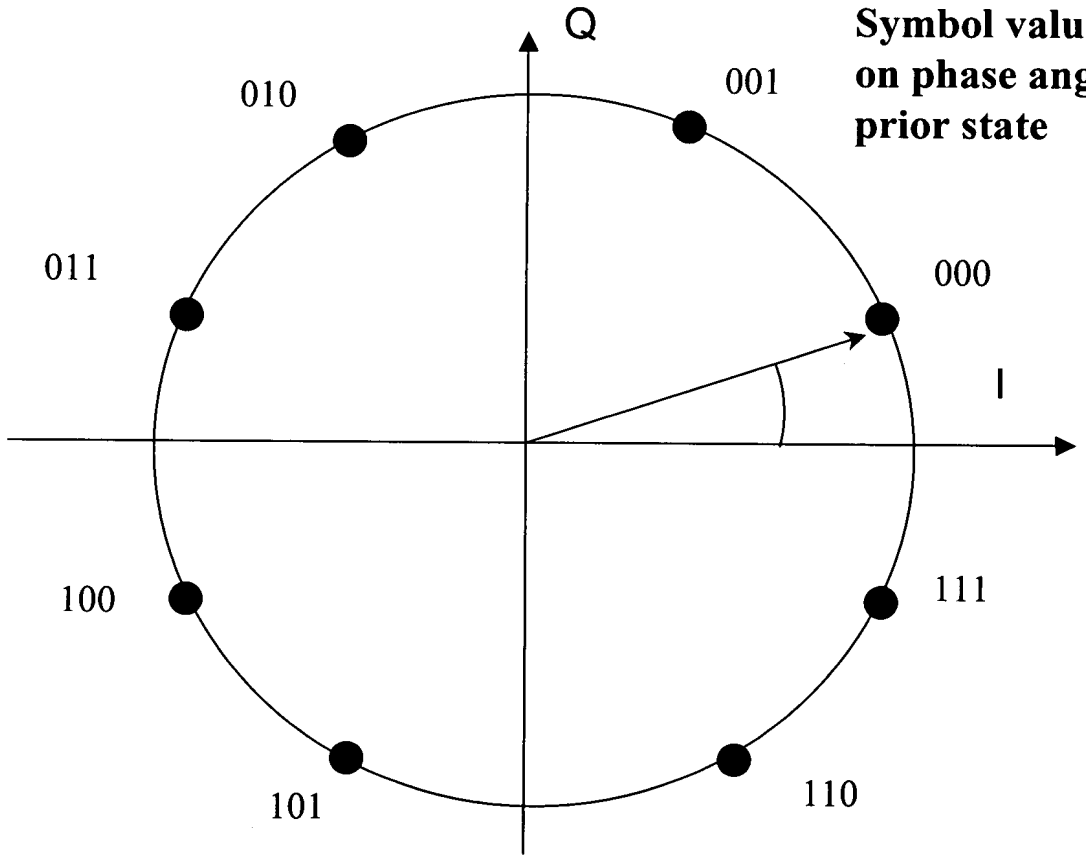

Symbol value of symbol depends on phase angle difference from prior state

Figure 1

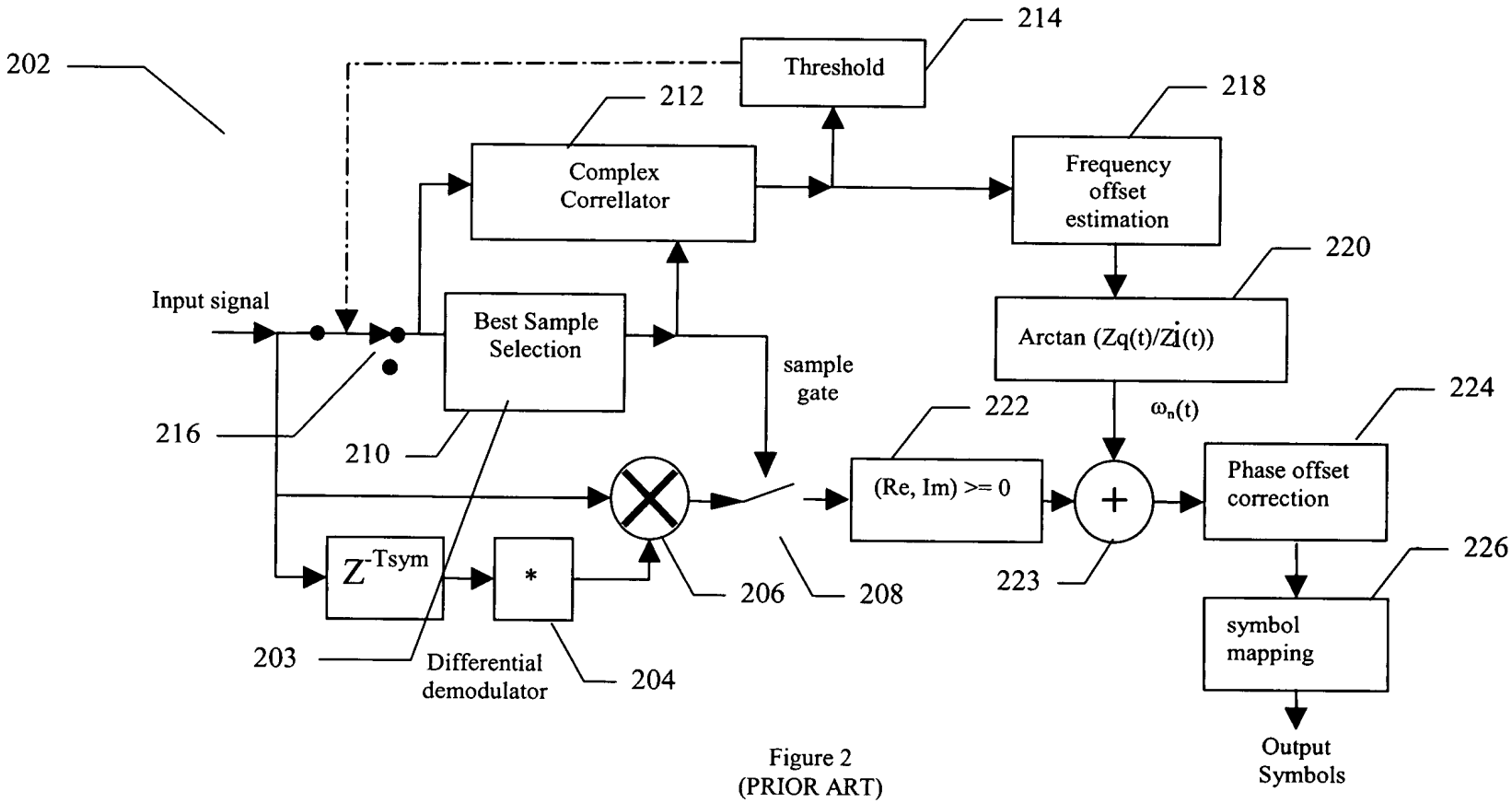

Figure 2
(PRIOR ART)

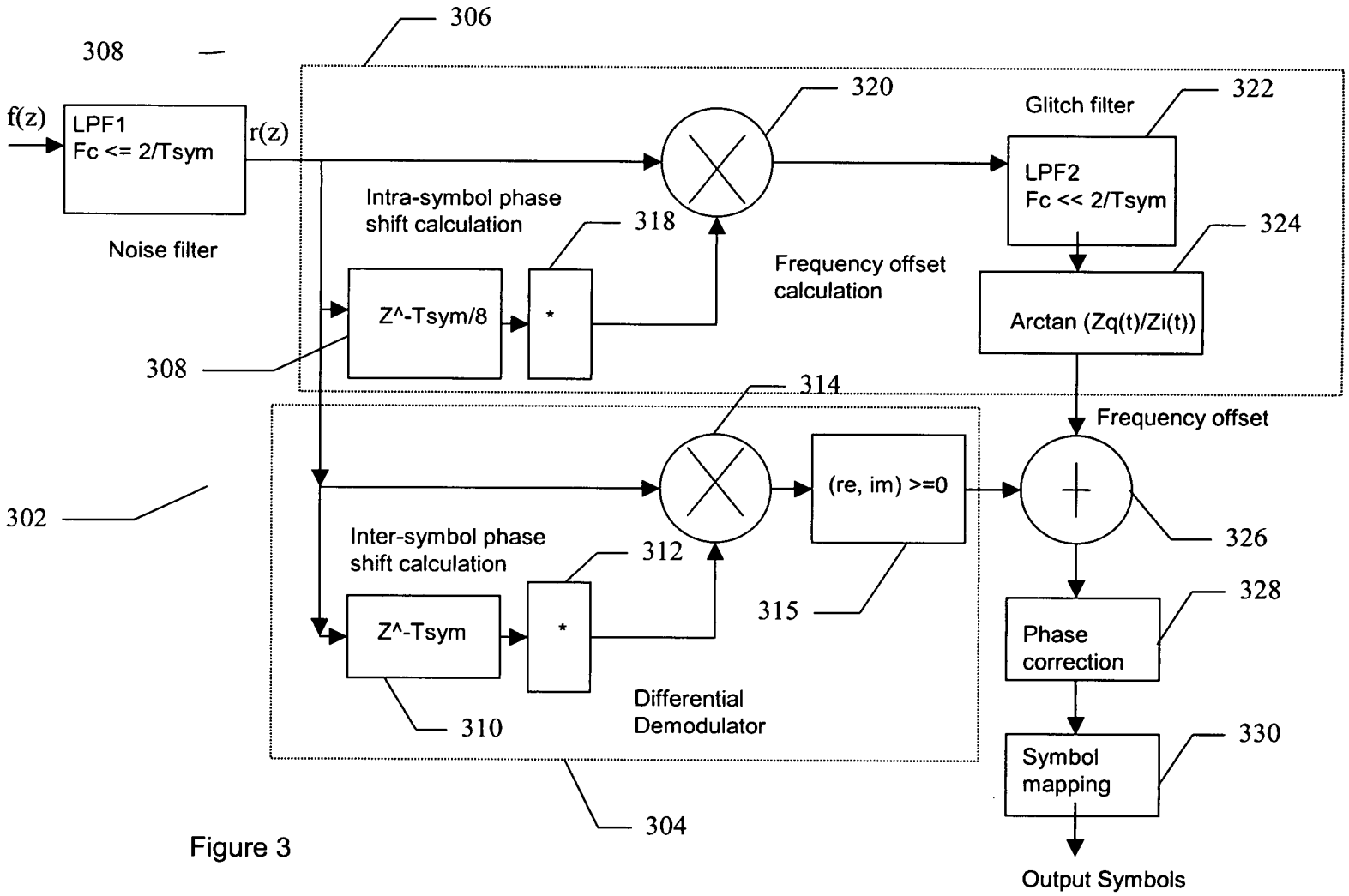
306
308
f(z)
LPF1
Fc <= 2/Tsym
r(z)
Noise filter
320
Glitch filter
322
LPF2
Fc << 2/Tsym
Intra-symbol phase
shift calculation
318
Frequency offset
calculation
324
Z^-Tsym/8
*
Arctan (Zq(t)/Zi(t))
308
314
Frequency offset
302
(re, im) >=0
326
Inter-symbol phase
shift calculation
312
315
328
Z^-Tsym
*
Phase
correction
Differential
Demodulator
310
330
Symbol
mapping
304
Output Symbols

Figure 3

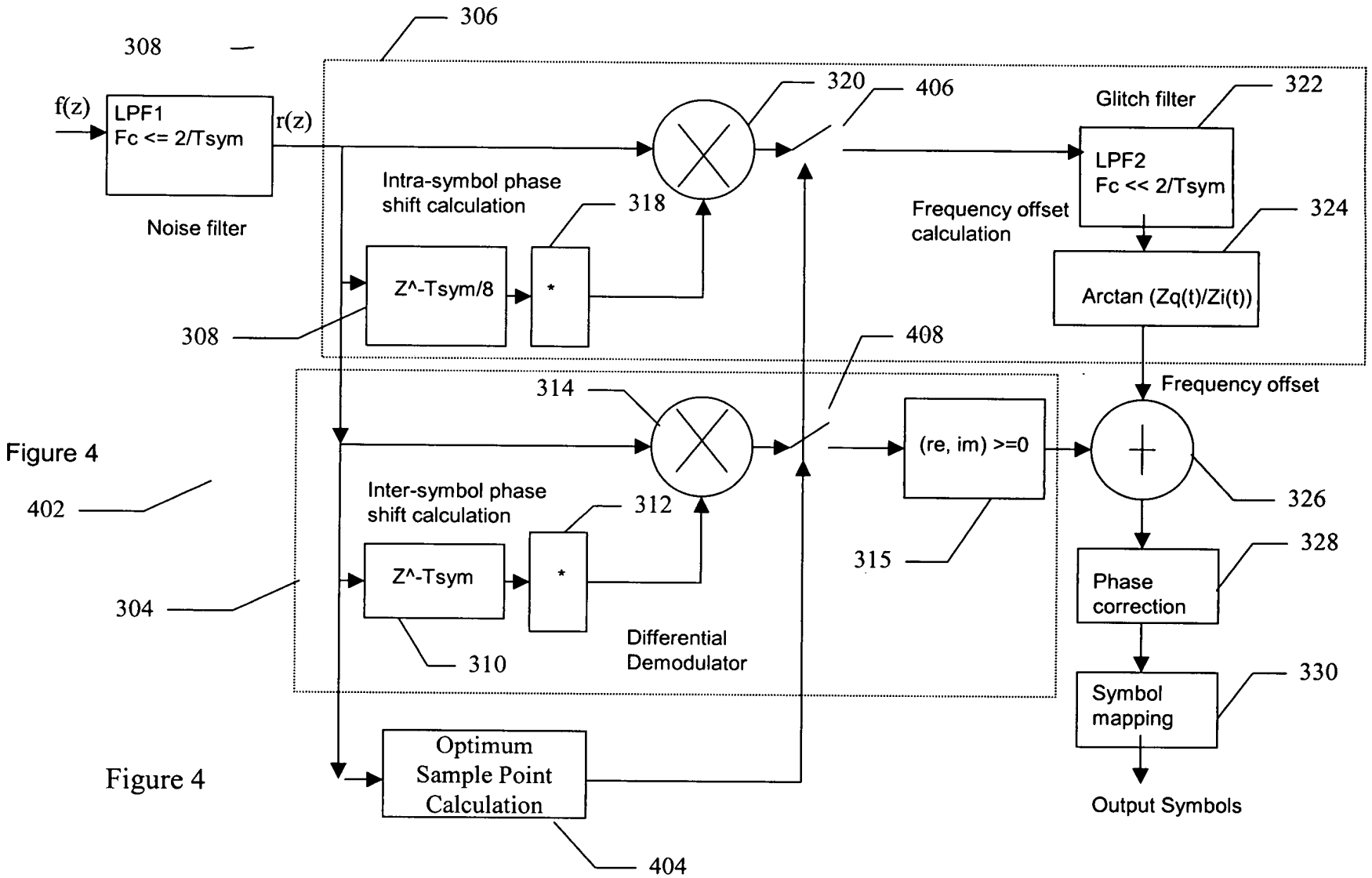

Figure 4

Figure 4

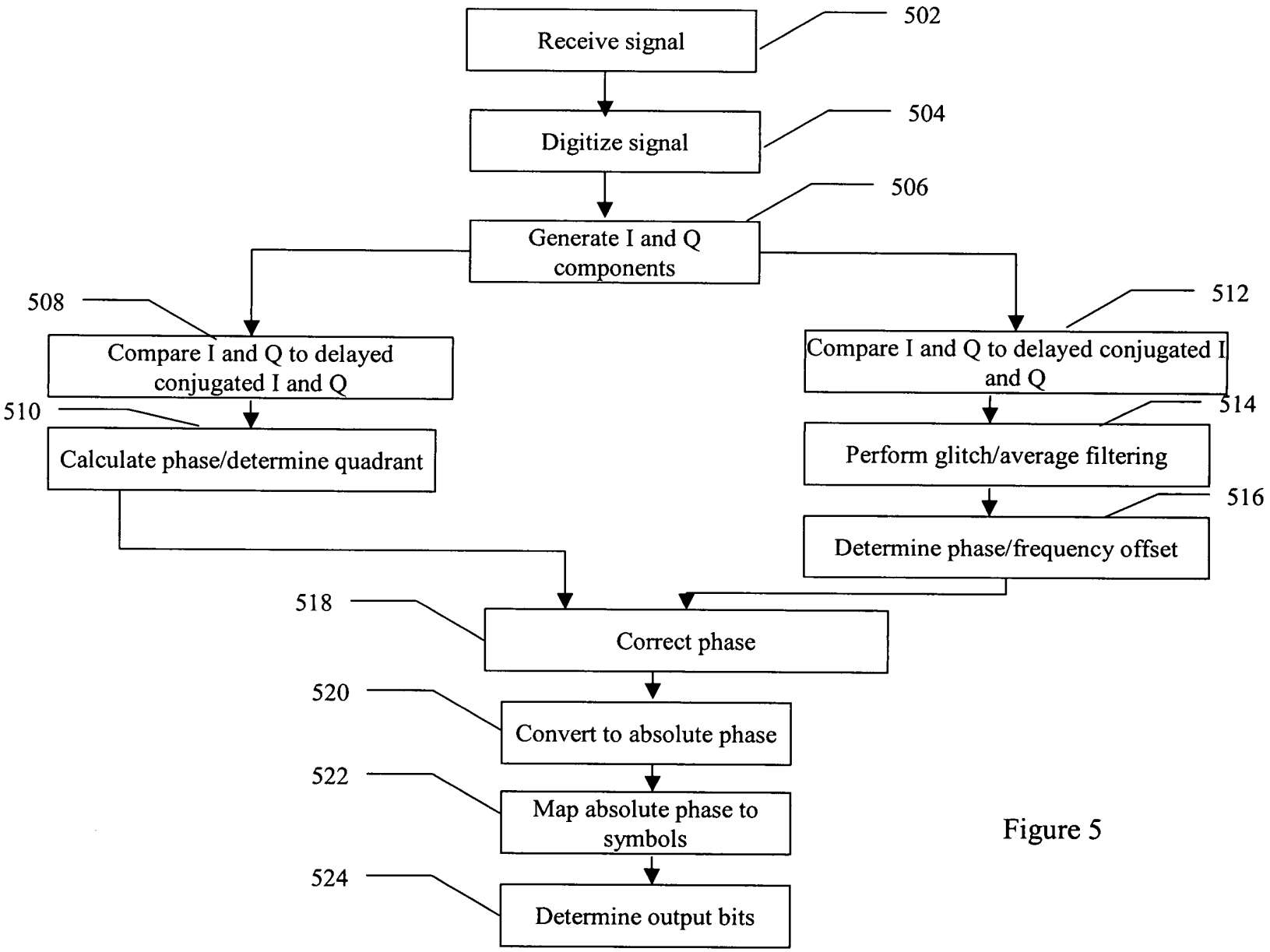
Receive signal
502
Digitize signal
504
Generate I and Q components
506
508
Compare I and Q to delayed conjugated I and Q
510
Calculate phase/determine quadrant
512
Compare I and Q to delayed conjugated I and Q
514
Perform glitch/average filtering
516
Determine phase/frequency offset
518
Correct phase
520
Convert to absolute phase
522
Map absolute phase to symbols
524
Determine output bits

Figure 5

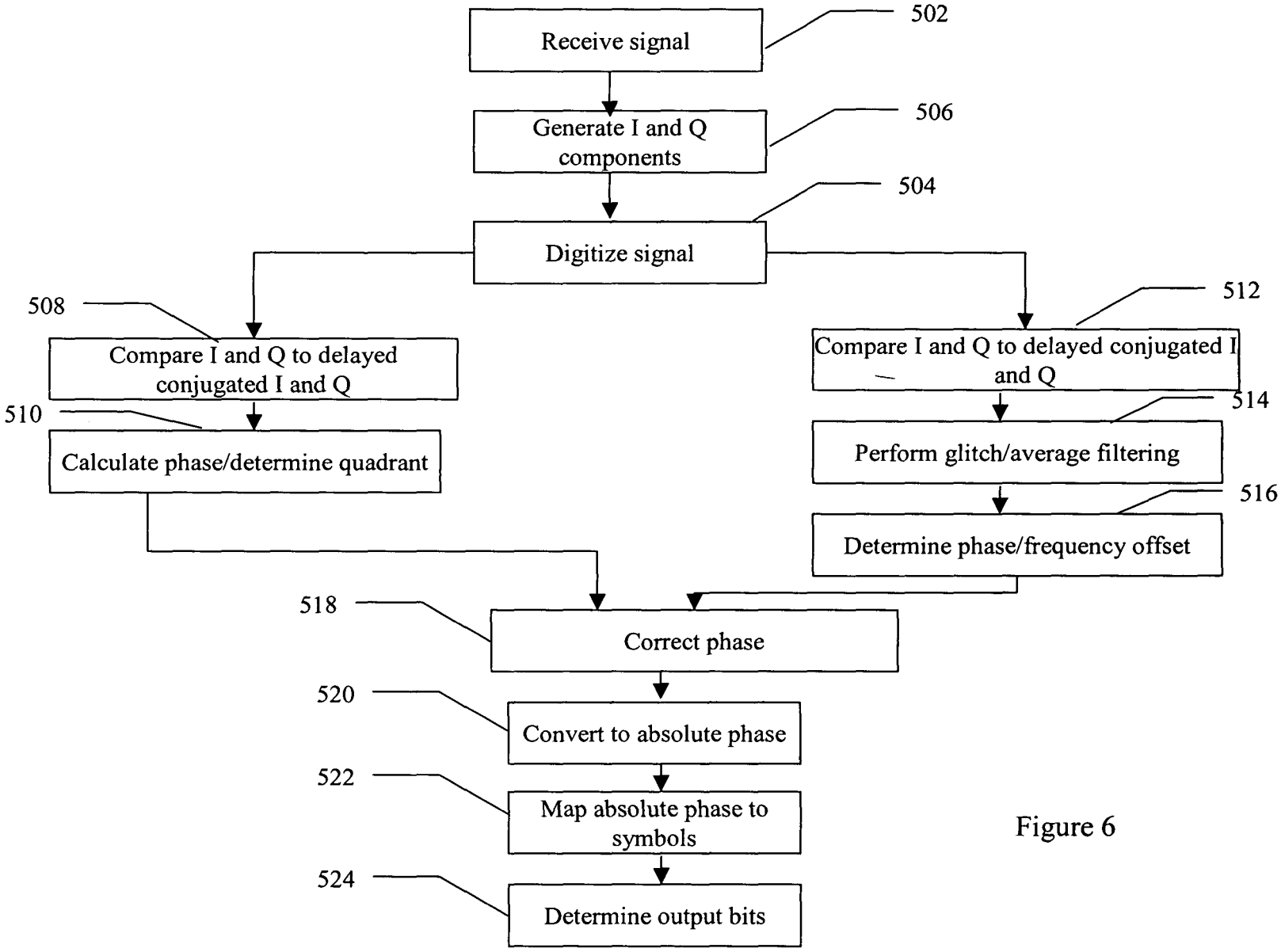
Receive signal
502
Generate I and Q components
506
Digitize signal
504
508
Compare I and Q to delayed conjugated I and Q
510
Calculate phase/determine quadrant
512
Compare I and Q to delayed conjugated I and Q
514
Perform glitch/average filtering
516
Determine phase/frequency offset
518
Correct phase
520
Convert to absolute phase
522
Map absolute phase to symbols
524
Determine output bits

Figure 6

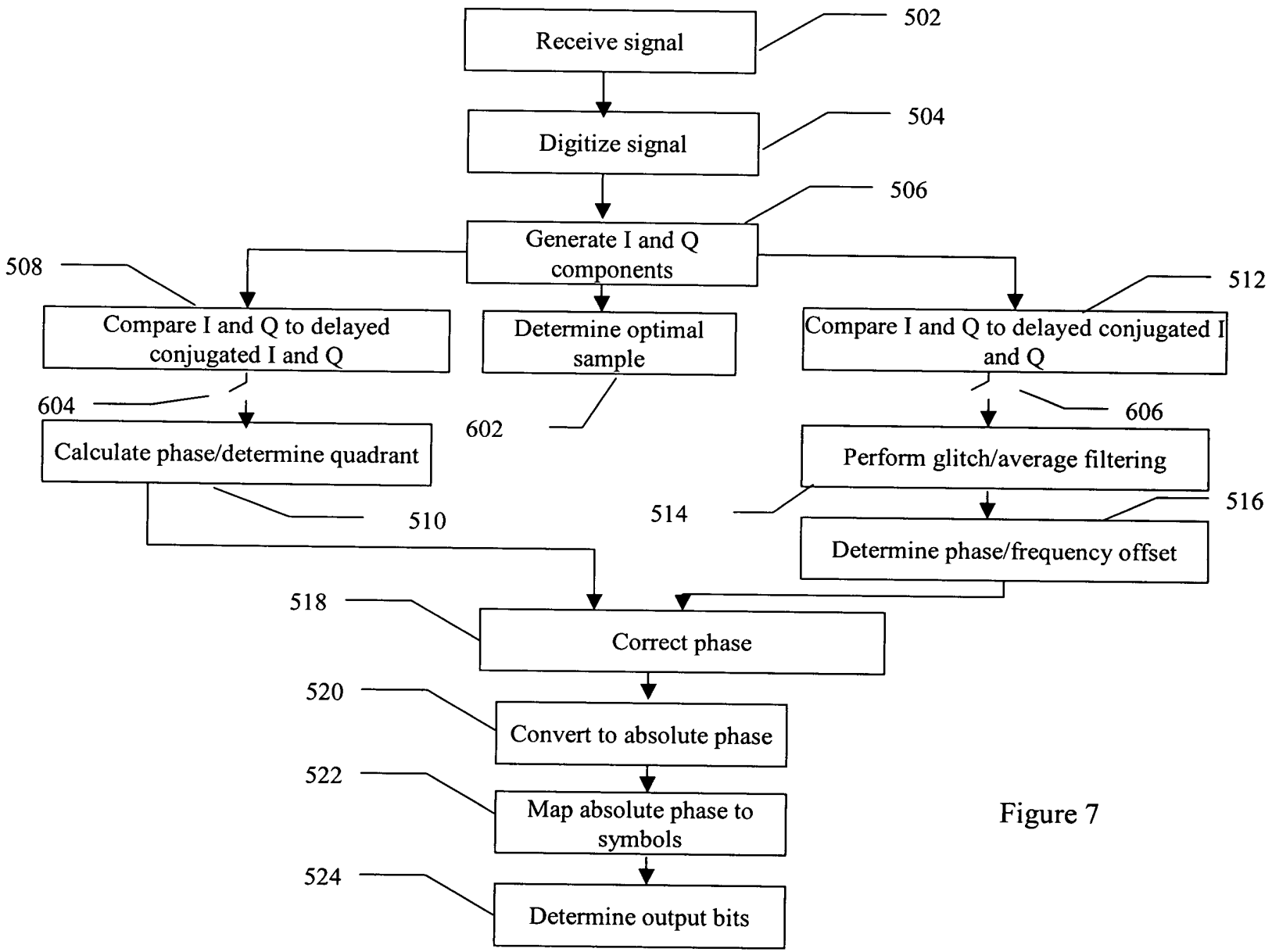
Receive signal
502
Digitize signal
504
Generate I and Q components
506
508
Compare I and Q to delayed conjugated I and Q
Determine optimal sample
Compare I and Q to delayed conjugated I and Q
512
604
602
606
Calculate phase/determine quadrant
Perform glitch/average filtering
514
516
510
Determine phase/frequency offset
518
Correct phase
520
Convert to absolute phase
522
Map absolute phase to symbols
524
Determine output bits

Figure 7

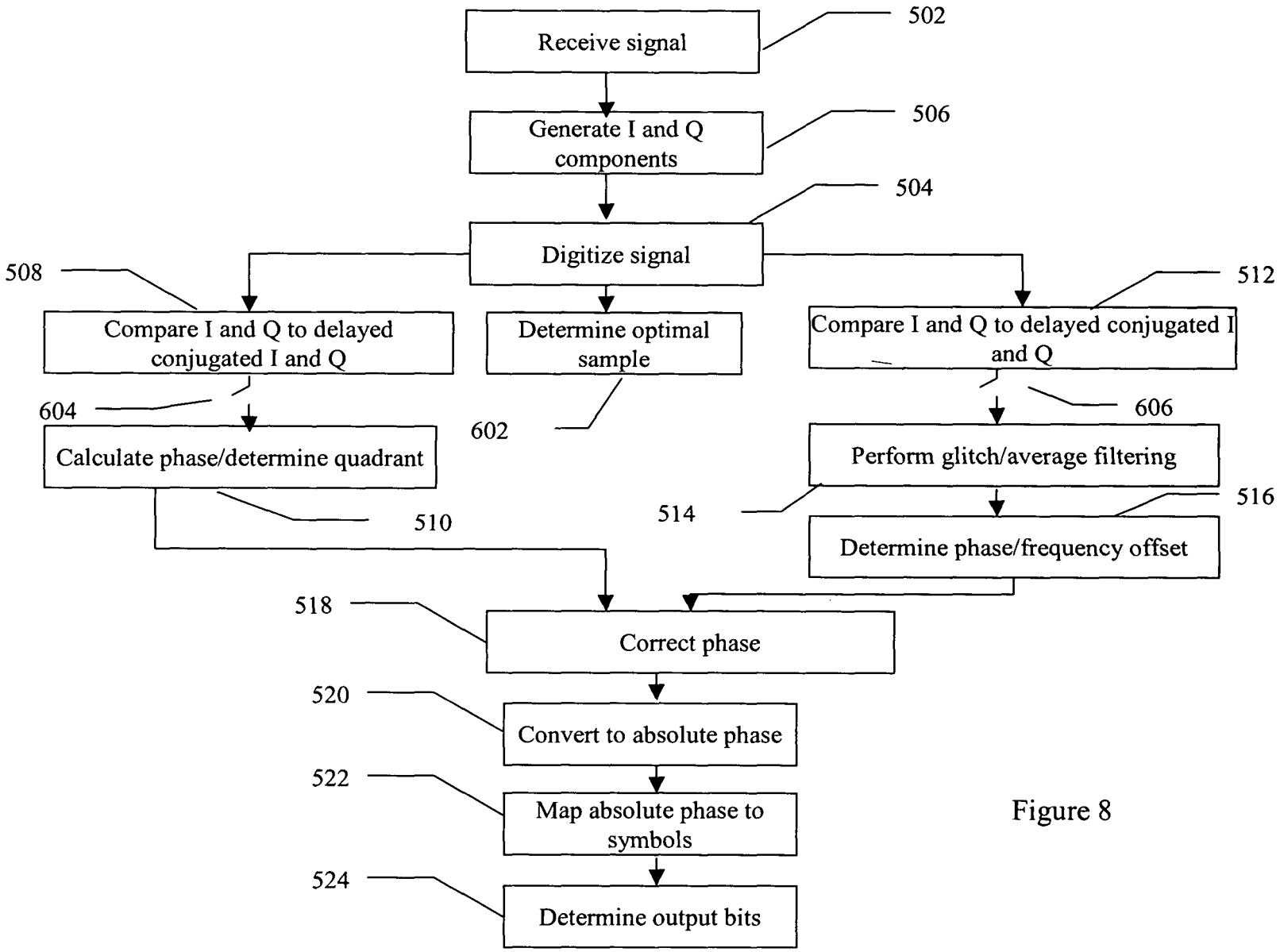
Receive signal
502
Generate I and Q components
506
Digitize signal
504
508
Compare I and Q to delayed conjugated I and Q
Determine optimal sample
Compare I and Q to delayed conjugated I and Q
512
604
602
606
Calculate phase/determine quadrant
Perform glitch/average filtering
514
516
510
Determine phase/frequency offset
518
Correct phase
520
Convert to absolute phase
522
Map absolute phase to symbols
524
Determine output bits

Figure 8